The Confluence Project

Searching for solutions to…

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...solutions to:

Science
Education
Shortfalls
Student
Connection
to
Watershed
STUDENT-
DRIVEN
Local
Watershed
Issues
The Confluence Project
1. Improving science education in Idaho
How do you and your community impact your local watershed and surrounding ecosystems?

3 Units

Water Quality, Snow Science, Agriculture
Q1 – WATER QUALITY UNIT

S1 – Guided Research Project

September

Q2 – AGRICULTURE UNIT

January

Q3 – SNOW SCIENCE UNIT

February

March

April

Youth Water Summit

S2 – Independent Research Project

COMMON CORE STATE STANDARDS INITIATIVE

PREPARING AMERICA'S STUDENTS FOR COLLEGE & CAREER

NEXT GENERATION SCIENCE STANDARDS
2. Fostering student connection to local watershed and environment
Asking a Research Question

1. Produce Your Questions

• Ask as many questions as you can.
• Do not stop to discuss, judge or answer the questions.
• Write down every question exactly as it is stated.
• Change any statement into a question.
Asking a Research Question

2. Improve Your Questions

• Categorize the questions as closed- or open-ended.

• Change closed-ended questions into open-ended questions.
3. **Prioritize the Questions**

- Choose your three most important questions.
- Why did you choose these three as the most important?
Asking a Research Question

4. **Next Steps**

- How are you going to use your questions?
Asking a Research Question

Reflection
The Confluence Project
Schools
2014-15
Water Quality
Snow Science
Agriculture
3. Improving local watershed health
How?

Service learning activities

Community partnerships

Student-driven solutions
Reflect on Blog

“In school we are able to look at data and apply that data to our studies to help us learn, but on the trip we were able to collect the data for ourselves and test it hands on. By doing this we can understand the concepts we are learning from the data better because we were able to see how it works... Being on the trip kept me more engaged and more interested on how the systems work. This is different from a normal class because I usually do the work to get a grade and am not typically interested, and being there in action I was able to connect our learnings with real life problems.”

http://wowconfluenceproject.wordpress.com/
Youth Water Summit Presentation

Research Projects → Local Watershed Issue

Scientific Context

Solution Assessment

Communication Strategy

Youth Water Summit Presentation
2015 YOUTH WATER SUMMIT

Nuclear Waste
Water Quality
Fish
Agriculture & Ranching
Hydropower
Economic Impacts
Stakeholder Education
Snowboarding
Snowpack
Heavy Metals
Stormwater
Logging
Invasive Species
Residential Irrigation
Climate Change Adaptation
Xeriscaping
Riparian Vegetation
Recreation
Media & Precipitation
Rain Barrels
Residential Irrigation
Climate Change Adaptation
Xeriscaping
Riparian Vegetation
Recreation
Media & Precipitation

THE CONFLUENCE PROJECT
What impact does TCP have?

Research questions:

1. How does a place- and project-based, experiential watershed science curriculum impact student concern of local environmental issues?
2. How does it impact their view of the efficacy of science as a tool to solve those issues?
3. How has student view nature of science changed after participating in this program?
Student Attitude Surveys

Methods:

• Administered anonymous pre- and post-program surveys
• 5 point Likert scale (24 questions)
• Short answer questions (3 questions)
• 8 schools
• n = 229 and 207 for pre and post, respectively
• Two sample t-test/paired t-test
• Currently coding qualitative questions
Are you concerned about ecological problems in your community?

![Graph showing concern levels pre- and post-survey.](image)

- **Pre-Survey**
  - Very concerned: Not at all concerned

- **Post-Survey**
  - Very concerned: Represented by a bar that is higher than the pre-survey bar, indicating an increase in concern.

Statistical significance: $p < 0.001$
To what extent can scientific solutions reduce the impact of environmental issues in your community?

Very much

$p < 0.001$

Not at all

Pre-Survey

Post-Survey
How confident are you with presenting your research?

- Very confident
- Not at all confident

$ p < 0.05 $
In-Class v. Field Learning

Pay attention?
Retain information?
Get excited?
Feel academically challenged?

Likert Scale

Class (post)
Field (post)
In-Class v. Field Learning

Pay attention?  Retain information?  Get excited?  Feel academically challenged?

Class (post)  Field (post)
In-Class v. Field Learning

Pay attention?
Retain information?
Get excited?
Feel academically challenged?

Likert Scale

Class (post)
Field (post)
In-Class v. Field Learning

- Pay attention?
- Retain information?
- Get excited?
- Feel academically challenged?

Likert Scale

Class (post) vs. Field (post)
Describe a time that you felt really engaged in a science class.

“The Confluence Project was very engaging because it included a diverse group of people, took a lot of thinking skills and collaboration, and relates it to the community we live within.”
Describe a time that you felt really engaged in a science class.

“I felt really engaged during our snow science field trip as well as during the planting at Blackwell island because you could immediately see your results and know that you were doing something beneficial for your community and the people in it that rely on it.”
Impact on Students

1. Concern of local environmental issues
2. Efficacy of science as a tool to solve those issues
3. View nature of science changed after participating in this program

4. Student skills
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• Palouse Clearwater Environmental Agency
• Strawberry Hill Nutrition Farm
• Twin Creeks Farm
• Twin Lakes Improvement Association
• Young Living Lavender Farm

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